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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/565,786	04/25/2006	Keiichiro Asaoka	F-8960	7542
28107 7590 12/02/2008 JORDAN AND HAMBURG LLP 122 EAST 42ND STREET SUITE 4000 NEW YORK, NY 10168				
EXAMINER WANG, CHUN CHENG				
ART UNIT		PAPER NUMBER		
1796				
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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

### Office Action Summary

**Application No.**

10/565,786

**Applicant(s)**

ASAOKA ET AL.

**Examiner**

Chun-Cheng Wang

**Art Unit**

1796

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 14 August 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 3-17 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 3-17 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SF/ICE)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

### **DETAILED ACTION**

1. This office action is in response to the Amendment filed on 08/14/2008. Claims 1-2 are cancelled. Claim 17 is added. Claims 3-17 are now pending.
2. The objections and rejections not addressed below are deemed withdrawn.
3. The text of those sections of Title 35, U.S. Code not included in this section can be found in a prior Office Action.

### ***Specification***

4. The disclosure is objected to because of the following informalities: Renumber of the claim 1 and 2 cited in the specification needed.

Appropriate correction is required.

### ***Claim Objections***

5. Claim 17 is objected to because of the following informalities: Change “colloidal” to “colloidal”.
6. Claim 8 is objected to because of the following informalities: Change “acid” to “acidic”  
Appropriate correction is required.

### ***Claim Rejections - 35 USC § 112***

7. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

8. Claim 17 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The claim is indefinite if undue experimentation is involved to determine boundaries of protection. This rationale is applicable to polymer "obtainable" by a stated process because any variation in any parameter within the scope of the claimed process would change the polymer produced. One who made or used a polymer made by a process other than the process cited in the claim would have to produce a polymer using all possible parameters within the scope of the claim, and then extensively analyze each product to determine if this polymer was obtainable by a process within the scope of the claimed process. See Ex Parte Tanksley, 26 USPQ 2d 1384.

9. Claims 11, 13-14 and 16 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 11 recites the limitation "acid solvent generation means" in claim 9. There is insufficient antecedent basis for this limitation in the claim.

Claim 13 recites the limitation "aggregating means" in claim 12. There is insufficient antecedent basis for this limitation in the claim.

Claim 14 recites the limitation "pH adjustment means" in claim 13. There is insufficient antecedent basis for this limitation in the claim.

Claim 16 recites the limitation "a means" in claim 7. There is insufficient antecedent basis for this limitation in the claim.

***Claim Rejections - 35 USC § 103***

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

11. Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over Poncelet et al. (US 5888711).

Poncelet et al. discloses an inorganic material is synthesized by reacting soluble silica or a soluble silicate compound with an aluminum compound to form a soluble hydroxyaluminum silicate complex in an aqueous solution at a pH of 3.2 to 5.5; and digesting at a pH of 3.1 to 5.0 soluble hydroxyaluminum complexes freshly formed, thereby forming a colloidal dispersion of the inorganic material. When the product is not isolated from its colloidal solution, it may be used as a flocculant (column 1 lines 15-26).

Claim 17 is the manufacturing method for the flocculant claimed is the material, reaction condition and sequence, which was cited through instant claims 17 and were rejected as previously discussed. Even though product-by-process claims are limited by and defined by the

process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process. Once the examiner provides a rationale tending to show that the claimed product appears to be the same or similar to that of the prior art, although produced by a different process, the burden shifts to applicant to come forward with evidence establishing an unobvious difference between the claimed product and the prior art product. *In re Marosi*, 710 F.2d 798, 802, 218 USPQ 289, 292 (Fed. Cir. 1983).

12. Claims 17, 3-7 and 15-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Poncelet et al. (US 5888711) in view of Yasuhiro et al. (JP2001-104711) and further in view of Hasegawa et al. (US 4923629).

13. Poncelet et al. disclose an inorganic material is synthesized by reacting soluble silica or a soluble silicate compound (read on claim 17) and NaOH with an aluminum compound (read on claims 17 and 6) to form a colloidal dispersion of the inorganic material. When the product is not isolated from its colloidal solution, it may be used as a flocculant (column 1 lines 15-26).

Hydrochloric acid (read on claim 4) and acetic acid (read on claim 5) was used to solubilize the flocculant. A white gel was collected which was solubilized with 5 ml of a 50:50 mixture of hydrochloric acid 1M and acetic acid 2M. The volume of the solution was made up to 1 liter with water, i.e. hydrochloric acid was diluted (read on claim 10). Ammonium hydroxide can be added (read on claim 16) (See Example 1). Aluminum sulfate and ion salts capable of generating hydroxide can be added to prepare flocculants or into water to be treated with the flocculant (read on claims 15 and 16) (column 4, lines 1-15).

Poncelet et al. is silent on (1) heat treating silicon-containing substance with an alkaline substance in solid form; and (2) pH value of 2-3.

Regarding point (1): Yasuhiro et al. disclose an inorganic flocculant comprising silica, calcium oxide, calcium hydroxide (read on claims 17, 3, 8 and 9), aluminum and iron (read on claim 6). And the flocculating agent is applicable to treat slurry consists of suspension particles (read on claims 15 and 17) (Detailed Description [0007]). The flocculant can be suitably obtained from the intermediate of a cement production during calcination of cement (read on claim 17 heat treating at a temperature below melting temperature of the silicon-containing substance) ([0009]). The flocculant is a relatively cheap inorganic system and especially low cost for manufacturing ([0003]).

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains to use cost-effective intermediate of a cement production and solubilize with acids as a flocculant.

Yasuhiro et al. is silent on adjust pH to 2-3.

Regarding point (2): Hasegawa et al. disclose method and flocculant for water treatment in which the highly polymerized silicic acid and a water-soluble salt of a metal capable of forming a hydroxide in water such as aluminum are added to the water to be treated (Abstract). Silicic acid polymerized in an acid solution at a pH of 4 sets to gel in approximately 8 hours when the pH of the solution is left unchanged. When the pH value of the solution is changed to 2 by the addition of diluted sulfuric acid, on the other hand, the same polysilicic acid remains stable even after 140 hours, exhibiting a satisfactory aggregating property (column 3, lines 14-21).

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains to adjust pH between 2 to 3 to prolong the shelf life of the flocculant for water treatment.

14. Claims 8-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Poncelet et al. (US 5888711) in view of Yasuhiro et al. (JP2001-104711).

Poncelet et al. disclose an inorganic material is synthesized by reacting soluble silica or a soluble silicate compound (read on claim 8) and NaOH with an aluminum compound to form a colloidal dispersion of the inorganic material. When the product is not isolated from its colloidal solution, it may be used as a flocculant (column 1 lines 15-26). Hydrochloric acid and acetic acid (read on claim 11) was used to solubilize the flocculant. A white gel was collected which was solubilized with 5 ml of a 50:50 mixture of hydrochloric acid 1M and acetic acid 2M. The volume of the solution was made up to 1 liter with water, i.e. hydrochloric acid was diluted (read on claim 10). Ammonium hydroxide can be added (read on claim 16) (see Example 1). Poncelet et al. discloses the residual ions can be eliminated by dialysis or by ultra-filtration (read on claim 12) (Column 4 lines 28 and 29).

Aluminum sulfate could be used as aggregation aid. Greater effect will be obtained if the salt of iron or other metal exists in the water to be treated with a flocculant of the invention. This can be achieved by adding the salt of other metal when the flocculant is prepared (column 4, lines 10-16). Although Poncelet et al. do not explicitly express using iron or aluminum to adjust pH, it is obvious that iron and aluminum added in the flocculant solution could react with hydrochloric acid ( $\text{Fe} + 2\text{HCl} \rightarrow \text{FeCl}_2 + \text{H}_2$  and  $2\text{Al} + 6\text{HCl} \rightarrow 2\text{AlCl}_3 + 3\text{H}_2\text{O}$ ) and then raise solution pH value (read on claim 14).



The aluminum sulfate, that could be used as aggregation aid in the flocculant solution, could generate  $\text{SO}_4^-$  ion and then react with  $\text{Ca}^{+2}$ , which is present in the flocculant solution, to form  $\text{CaSO}_4$  which is equivalent to gypsum ( $\text{CaSO}_4 \cdot 2\text{H}_2\text{O}$ ) in solution (read on claim 13).

Poncelet et al. is silent on heat treating silicon-containing substance with an alkaline substance in solid form.

Yasuhiro et al. disclose a method to manufacture an inorganic flocculant comprises heat treating silica, calcium oxide, calcium hydroxide (read on claims 8 and 9), aluminum and iron mixture. And the flocculating agent is applicable to treat slurry consists of suspension particles (Detailed Description [0007]). The flocculant can be suitably obtained from the intermediate of a cement production during calcination of cement (read on claim 8 heat treating at a temperature below melting temperature of the silicon-containing substance) ([0009]). The flocculant is a relatively cheap inorganic system and especially low cost for manufacturing ([0003]).

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains to use cost-effective intermediate of a cement production and solubilize with acids as a flocculant.

### ***Response to Arguments***

15. Applicant's arguments with respect to claims 1-16 anticipated by or unpatentable over Tsutomo et al. (JP 3157107) have been considered but are moot in view of the new ground(s) of rejection. The previously applied reference Tsutomo et al. (JP 3157107) is withdrawn.

16. Claim Rejections Under 35 U.S.C. §102:

17. Rejections with respect to claim 1 anticipated by Yasuhiro et al. (JP 2001-104711), claim 1 anticipated by Poncelet et al. (US 5888711) and claims 1-4 anticipated by Tsutomo et al. (JP

3157107) have been considered but are moot in view of the new ground(s) of rejection. The 35 U.S.C. §102 rejections have been withdrawn due to the cancellation of claims 1 and 2 and newly added claim 17.

18. Regarding applicant's argument: "heating a solid mixture of silicon-containing compound and an alkaline substance" on page 13, lines 17 and 18.

Response: In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993). The limitations in the cancelled claims 1 and 2 do not contain "heating a solid mixture."

19. Claim Rejections Under 35 U.S.C. §103:

20. Applicant's arguments with respect to claims 1-14 anticipated by or obvious over Tsutomo et al. (JP 3157107) have been considered but are moot in view of the new ground(s) of rejection. The rejections by previously applied reference Tsutomo et al. (JP 3157107), which is not longer applicable, are replaced with new ground(s) of rejections: (1) unpatentable over Poncelet et al. (US 5888711) in view of Yasuhiro et al. (JP2001-104711) and further in view of Hasegawa et al. (US 4923629) for claims 17 and 3-7; and (2) unpatentable over Poncelet et al. (US 5888711) in view of Yasuhiro et al. (JP2001-104711) for claims 8-14.

21. Applicant's arguments with respect to claims 15-16 unpatentable over Kalinski et al. (US 2650193) have been considered but are moot in view of the new ground(s) of rejection. The previously applied reference Kalinski et al. (US 2650193) is replaced with new ground(s) of

rejections: unpatentable over Poncelet et al. (US 5888711) in view of Yasuhiro et al. (JP2001-104711) and further in view of Hasegawa et al. (US 4923629).

22. Regarding "Claims 15 and 16 depend from claim 8 that, ..."

Response: Attentions are drawn to claim 15 which recites "A flocculant method for mixing the flocculant mentioned in claim 7" and claim 16 "...mentioned in claim 15..."

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Chun-Cheng Wang whose telephone number is (571)270-5459. The examiner can normally be reached on Monday to Friday w/alternate Friday off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Wu can be reached on 571-272-1114. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Art Unit: 1796

/Ling-Siu Choi/

Primary Examiner, Art Unit 1796

/CCW/

/Chun-Cheng Wang/

Examiner, Art Unit 4171